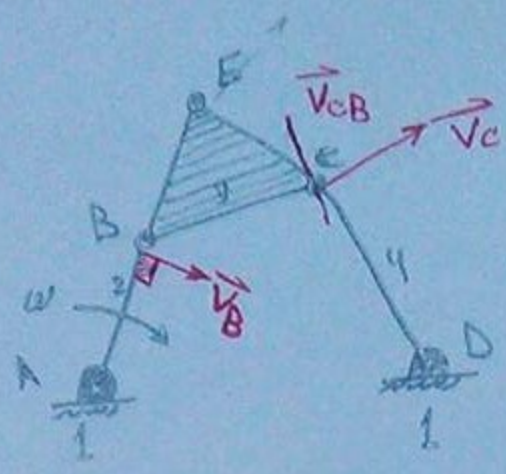
11/11/2015
معاضي ☐ نظرية ماكينات

Ex:



Given

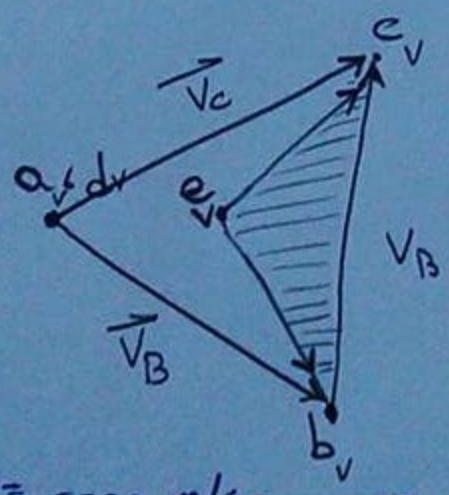
AB = ١١
DA = ٧
BC = ١١
CD = ١٢
BE = ١٧
EC = ١١

Solution

velocity of(B) = $\vec{V}_B = \omega_2 * AB = ٧٧$ (m/s)
$\hookrightarrow \perp AB)_B$

$$\vec{V}_c = \perp \bar{cD})_c \quad \& \quad \vec{V}_{cB} = \perp Bc)_c$$

$$SF = \frac{Cal.}{Actual} = Value \longrightarrow \frac{Bc}{b_v c_v} = \frac{cE}{c_v e_v} = \frac{EB}{e_v b_v}$$



$$c_v e_v = \frac{b_v c_v * cE}{Bc} = ١١$$

$$e_v b_v = \frac{b_c v_c * EB}{Bc} = ١١$$

$\vec{V}_c = d_v e_v *$ scale= ---- m/s. $\longrightarrow = \omega_4 * cD = ١١$

$\vec{V}_{cB} = c_v b_v *$ scale = ----- m/s. $\longrightarrow \omega_3 * Bc = ١١$

$\vec{V}_E = a_v e_v *$ scale = ----- m/s. $\longrightarrow$

b

Acceleration Polygen

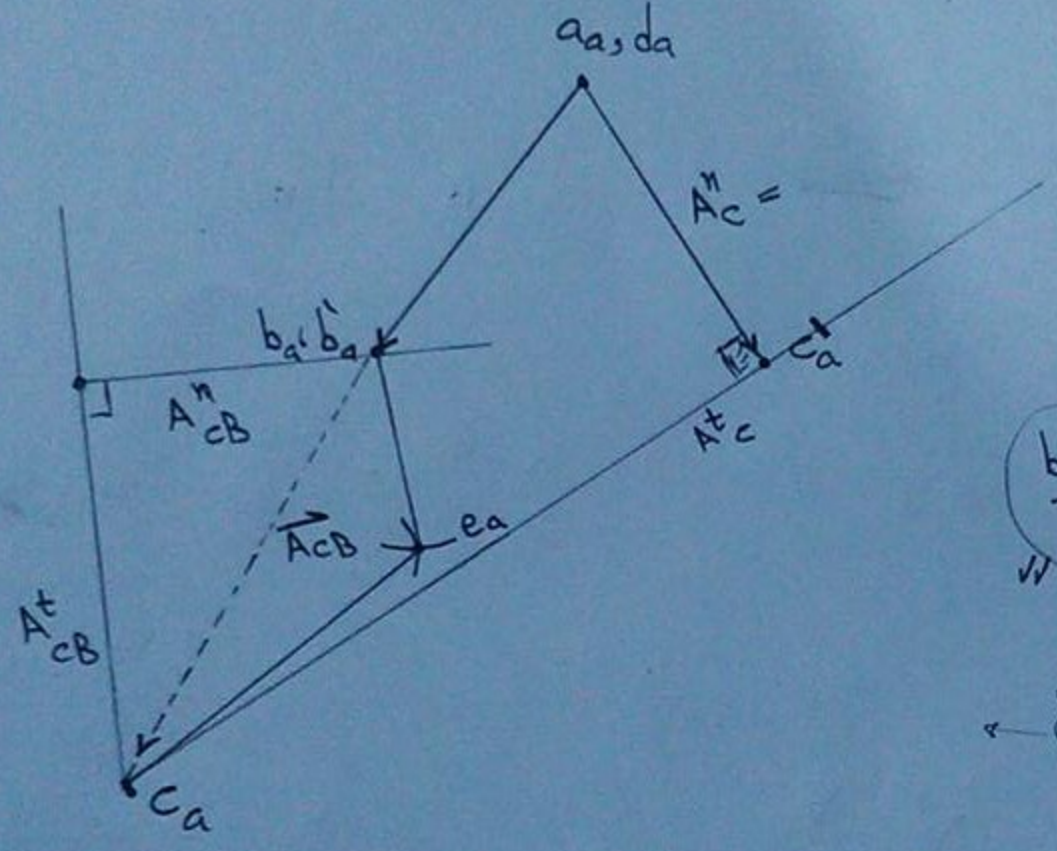
$$A^n = \omega^2 R = \frac{V^2}{R}$$

$$A^t = \alpha . R$$

$$\vec{V_C} = \vec{V_B} + \vec{V_{CB}}$$

$$\vec{A_C} = \vec{A_B} + \vec{A_{CB}}$$

$$(\vec{A^n_C} + \vec{A^t_C}) \quad (\vec{A^n_B} + \vec{A^t_B}) \quad (\vec{A^n_{CB}} + \vec{A^t_{CB}})$$



(e_a لإيجاد نقطة)

$$\frac{b_a c_a}{Bc} = \frac{e_a c_a}{Ec} = \frac{e_a b_a}{EB}$$

VV

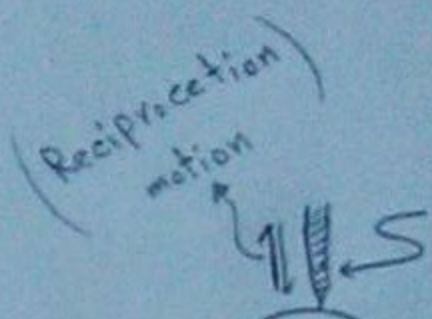
$e_a c_a = VV$

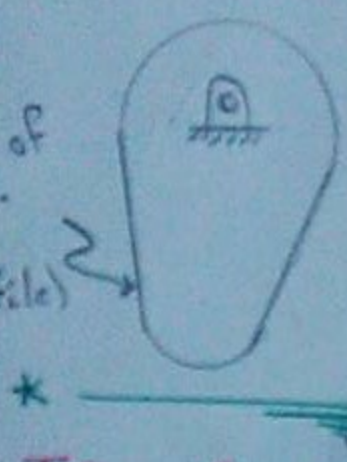
$e_a b_a = VV$

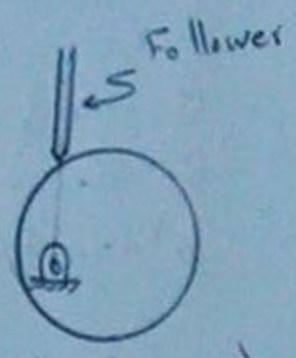
Cams

٣

عضو ميكانيكي دوار يتحرك حول نقطة ثابته بأبعاد مختلفة .







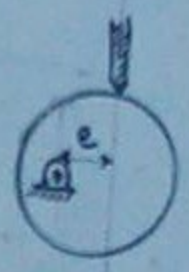
(Radical cam)

Types of Cams :- → 1) Disc cam

(Based on shape) → 2) cylinder cam

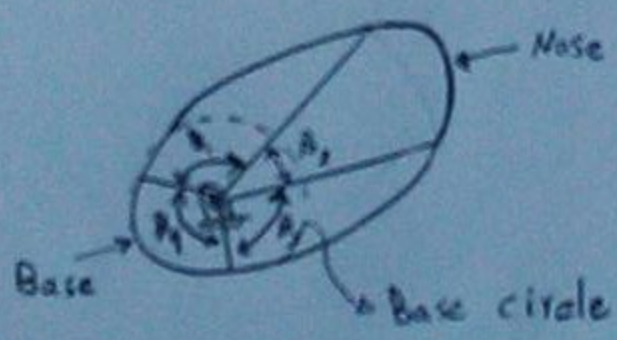
Types of cams :- →

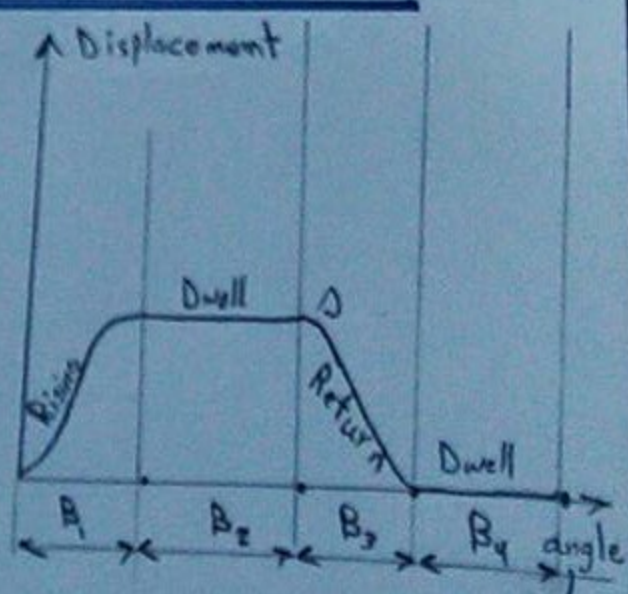
(Based on motion)



e : offsed .

(offsed cam)

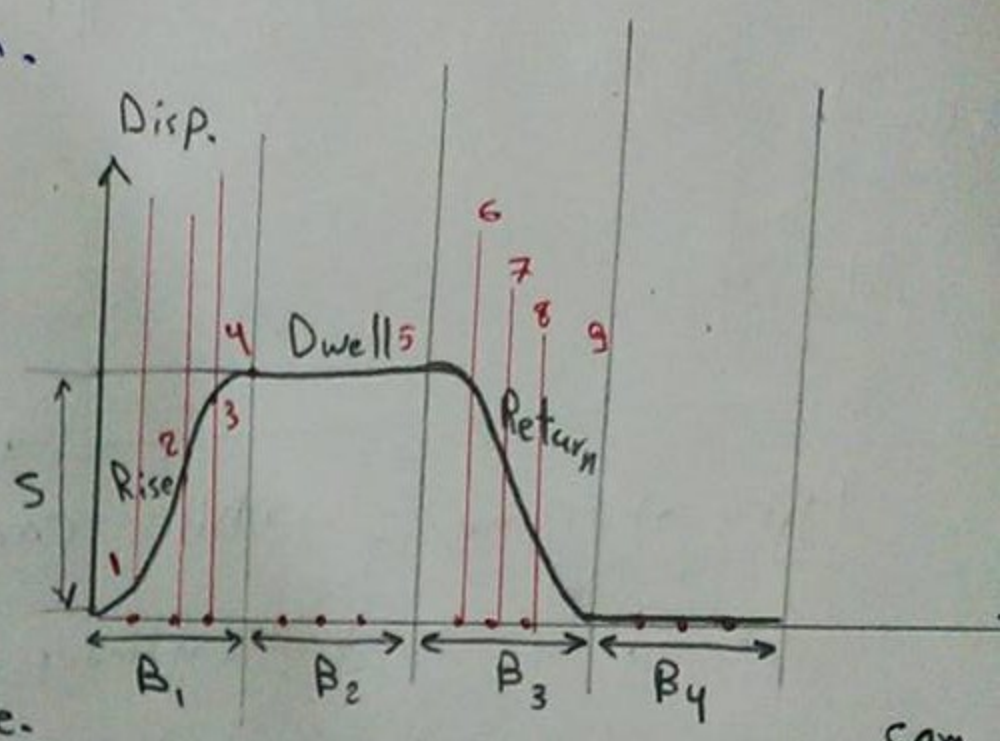


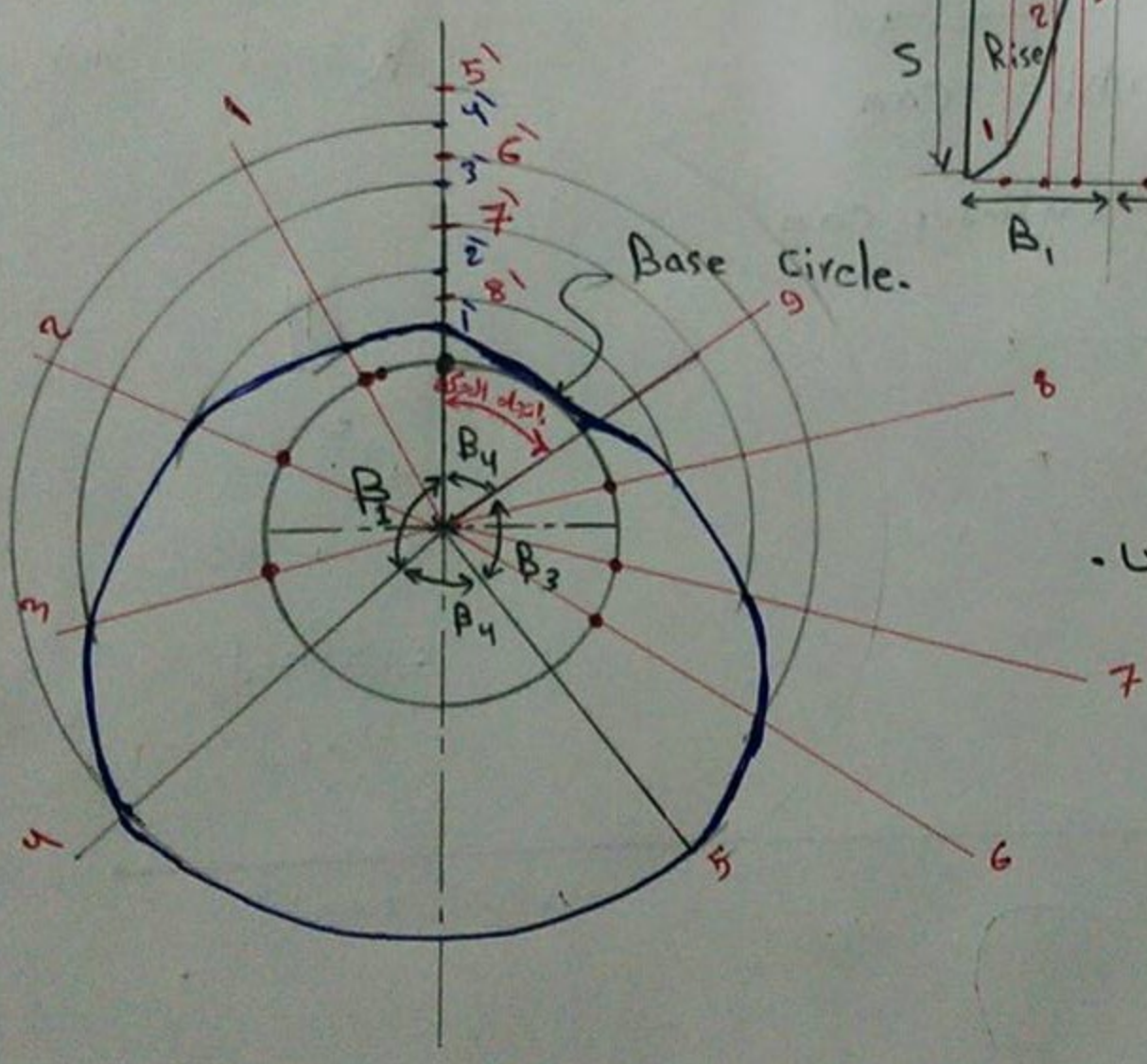


(Displacement time Diagram)

Cam profile

1. Disp. Digram.
2. Types of cam → Radial. / offsed cam.
3. Base circle dimater.
4. offsed.
5. Follower type.
6. Direction of motion.





لو إذا كان إتجاه الحركة مع عقارب الساعة
يكون قياس الزوايا عكس عقارب الساعة والعكس.